Towards
A National Competitiveness Strategy: Building on the Emerging Consensus

A Focus on Canada's Knowledge Base - Education, Training and Science and Technology

Province of British Columbia
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Executive Summary

- National competitiveness is fundamental to the maintenance of Canada's standard of living and quality of life.

- Global forces of change are increasingly driving Canada and other leading nations towards a knowledge-intensive economy.

- A number of high-level national and international reviews have helped develop a consensus on the process of long-term economic growth highlighting the importance of education, training, and science and technology. The critical role of the knowledge base in promoting environmental integrity has also been recognized.

- There is considerable evidence that Canada needs to bolster its priorities in developing its knowledge base to keep up with the competition. There is also a critical need to enhance the effectiveness of public resources devoted to this area.

- Recognizing the increasing importance of the knowledge base to the future vitality of the Province, British Columbia has recently taken a number of steps to provide leadership in this area: the Sullivan Royal Commission on Basic Education leading to revitalization of the school system; the Access for All initiative in Post-Secondary Education with innovative degree-granting partnerships between Universities and Community Colleges; the Employment and Training Task Force; and a commitment to a nine-point provincial science and technology policy as well as to major science projects including the Kaon Factory, and an international centre of excellence in high energy physics.

- Similar strategies have been developed, and initiatives undertaken by a number of other provinces and federal government departments and agencies. The federal-provincial cooperative exercises include: the Provincial-Territorial Education and Training Strategy; Towards a Labour Force Strategy for Women; the Halifax Declaration; and Partners in People – a Human Resource Adjustment and Development Strategy for the 1990s.

- There is an increasing realization that Canada needs to develop an integrated strategy and an action plan to provide a focus to the numerous efforts in various sectors, departments and jurisdictions. A First Ministers' Conference on "The Future Knowledge-Based Economy" would be an appropriate forum to discuss elements of a National Action Plan such as:

  - a Federal-Provincial liaison mechanism that would include representation from all federal/provincial ministerial committees related to the knowledge base (education, training and adjustment, science and technology), as well as from national institutions such as the Canadian Labour Market Productivity Centre, the Economic Council, the Canadian Manufacturers' Association and the Canadian Federation of Independent Business;

  - refocussing of the resources of national institutions to create a national technology assessment and promotion office;

  - adoption of the Halifax Declaration including a national commitment to the R&D goal of 2.5% of GDP;

  - development of measurable goals and mechanisms to ensure a high level of participation and cost-effectiveness for Canada's education and training system; and

  - development of a public awareness program on the role of education, skill development, and science and technology in maintaining the Canadian standard of living and quality of life.

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INTRODUCTION

In the last five years, Canada has enjoyed extraordinary economic growth. The rate of real GDP growth has been faster than that of all other major industrialized countries and almost twice that of the OECD average. This impressive economic performance has been well recognized. The World Economic Forum now ranks Canada fourth in terms of economic competitiveness, up from 11th place in 1984. Other international agencies, such as the OECD and the World Bank, continue to forecast strong economic growth for Canada for the next one to two years.

Despite the impressive growth in our economy during the past few years, many eminent Canadians continue to raise questions regarding the ability of the Canadian economy to maintain its competitive position. Some would suggest that much of our recent growth can be attributed to normal cyclical factors and to the change in the "external" environment - commodity prices, exchange rates, U.S. economic growth - rather than to a fundamental change in the competitive structure of the Canadian economy itself.

Nevertheless, it is widely acknowledged that the federal and provincial governments have provided a strong pro-recovery framework of policies. At the same time, however, there is a growing concern from both national and international institutions that Canada has not yet implemented policies required to maintain long-term prosperity in an increasingly competitive global economy. Canada's future prosperity will depend on the extent to which policy makers develop the appropriate mechanisms to effect the necessary changes in Canada's economic structure.

Attention to the issue of Canada's long-term competitiveness is not new. Concerns about Canada's technological, education and training infrastructure have been voiced by the Economic Council of Canada (1988), the MacDonald Commission (1985), and several provincial and federal task forces and councils. Most recently, the Prime Minister, Western Premiers, and Premiers across Canada have emphasized the necessity of adapting to new economic realities as a prerequisite for Canada's future competitiveness in the global economy.

In spite of Canada's robust economic performance over the past five years, there is a growing concern that Canada has not yet implemented policies required to maintain long-term prosperity in an increasingly competitive global economy.

Given the growing consensus that fundamental changes are required to ensure the long-term competitiveness of Canada in world markets, the purpose of this paper is to identify the key directions defined in these previous deliberations and to present a vision for a national strategy. The accelerating pace of global change calls for a strategy based on excellence, flexibility, and adaptability of the economy and the people of Canada.

National Competitiveness

The meaning of "competitiveness"

Competitiveness may mean different things to different people. For a small business, the availability of reasonably skilled individuals at low wages enhances the firm's competitive position in an international market place. The World Economic Forum tends to focus on measures that enhance opportunities for business profitability as part of the criteria that is used to evaluate competitiveness. In this context, the low wage rates (even for skilled workers) prevalent in Brazil, Mexico and India have resulted in these countries obtaining relatively high scores in these competitiveness rankings.

National competitiveness is much more than low wage rates.

National competitiveness, however, is much more than low wage rates. In fact, low wages could indicate a lack of overall national competitiveness which is determined by numerous interrelated factors including the knowledge and information base, the education and training of the workforce, and the trade and investment base of the economy. There is general agreement among economists that the ability of an economy to generate high wages, incomes and a high standard of living is the best overall measure of international competitiveness.

There is a growing consensus that Canadian economic growth can no longer be predicated solely on demand growth, productive efficiencies and strong prices for basic commodities. Canada, like many other developed economies, must be prepared for an era of rapid technological change, strong foreign competition, worldwide perspectives in marketing, the production of complex products for sophisticated consumers, and the necessity for adding value to the products of industry.

Keeping Canada competitive in the world marketplace directly determines the standard of living of its citizens. In a world economy increasingly based on knowledge and information, in concert with a highly developed human resource base, the advantages of physical capital and natural resources are lessened in relative importance. Gaining an advantage in human capital requires a strategic mix of

education, skills development, and on-the-job training. It is these areas of national strength which will provide the first line of defense in adapting to the pressures of economic and technological change.

A Changing Environment

Forces of Change

Forces of change include economic globalization, technological advances, demographic changes and growing environmental awareness.

Several "megaforces" are contributing to a substantial transformation in the world's social, demographic and economic structure. To a large extent, the performance of national economies and corporate health is determined by the ability of their citizens and management to anticipate, respond to, and manage these forces of change. In some cases, failure to respond to these global forces of change has resulted in diminished competitiveness and erosion in the standard of living and quality of life. In contrast, economies which have anticipated and adjusted to such change have emerged as powerful players in the world economy. In the coming decades, Canadian economic policy will continue to be influenced by four broad forces of change: economic globalization; technological advances; demographic trends; and environmental factors.

Economic Globalization has substantially increased the scope of competition for most products and services. Such globalization has been the result of the following processes:

- standardization of products and processes;
- transportation efficiencies;
- new information technologies;
- reductions in tariff and non-tariff trade barriers; and
- the growth of multi-national companies.

Countries that have been reluctant to adjust have witnessed declines in export shares, investment and productivity.

Economic globalization has had a profound impact on the world economic order. The mobility of capital has enabled "competitive" countries to secure the investment necessary to expand production and to enhance the quality of life. In contrast, countries that have been reluctant to adjust to this "globalization" process have witnessed declines in export shares, capital investment and labour productivity.

As noted by the C.D. Howe Institute:

> "Globalization is a reality that all countries must deal with. It is driven by the contest among firms for markets and the lowest possible costs of production and distribution...Countries that choose to swim against this powerful tide risk losing investment and seeing their relative living standards flounder."
>
> *C.D. Howe Institute*
> *Ottawa's Next Agenda*

Technological Advances have played a major role in the development of industrial and newly-industrialized economies. Technological advances encompass:

- the development of entirely new products (fibre-optics) and processes (just-in-time inventory control);
- the application of new technologies to existing tasks; and
- an acceleration in the obsolescence of existing or new products and processes.

Technological advances effectively "equalize" producer advantages.

These technological advances effectively "equalize" producer advantages and diminish the importance of traditional competitive factors such as access to resources and the supply of labour. The rapid pace of scientific and technological change, and the ability of human resources to harness it, will continue to be major forces in the global restructuring.

Demographic trends will continue to impact on policy decisions in both industrialized and developing economies, for example:

- In Canada, the combination of a rapidly aging population and generous pension benefits will place considerable strain on social service expenditures. The OECD estimates that given current demographic patterns, Canadian expenditures on social programs are expected to double in real terms by the year 2010.
- As 90% of the world's population growth will occur in the developing countries, it can be expected that some of these countries will achieve only modest progress in reducing famine, urbanization and rural poverty.
- The decline in the number of younger entrants into the labour force in developed countries, combined with more older workers leaving the workforce, will necessitate a more effective utilization of the existing labour force.

Concerns about the *Physical Environment* and its potential global deterioration through such forces as the "greenhouse effect", ozone depletion and food chain contamination underscores the need to develop economic policies that are consistent with the environment in which we live. The Brundtland Commission summarized the implications should these environmental trends continue:

> "Each year another 6 million hectares of productive dryland turns into worthless desert... The burning of fossil fuels puts into the atmosphere carbon dioxide, which is causing gradual global warming. This greenhouse effect may, by early next century, have increased average global temperatures by enough to shift agricultural production areas, raise sea levels to flood coastal cities, and disrupt national economies."
>
> *Brundtland Commission, 1987*

Increasingly, economic growth will have to be consistent with sustaining the environment. Development decisions will have to conform to the "SAFE" challenge which can be summarized as follows:

Need to meet the challenge of a "SAFE" environment.

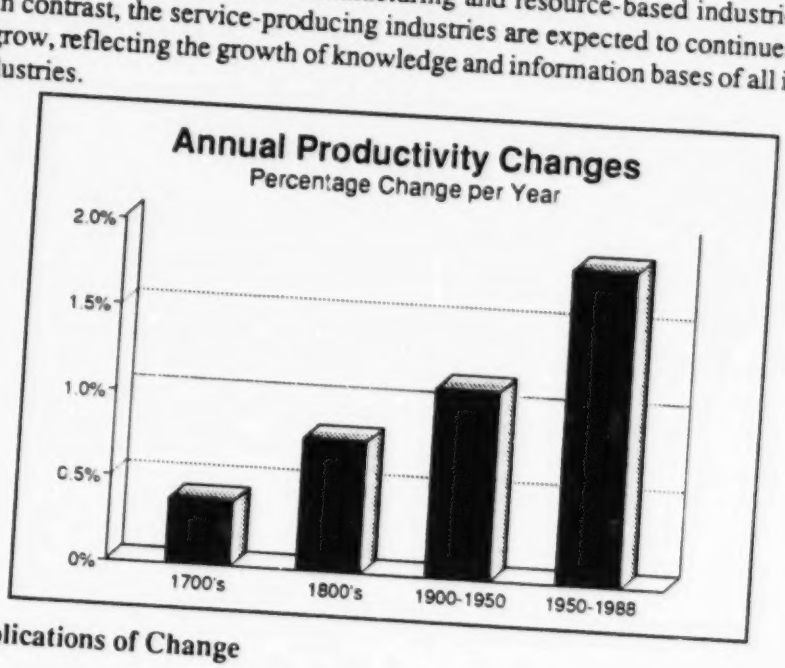
S - addressing the Solid and Hazardous waste problems
A - policies that reduce Atmospheric pollution (acid rain, greenhouse effect, ozone depletion, etc.)
F - recognition of increased incidence of Food and Water chain contamination
E - Ecological Concerns (sustainable development, habitat for sustaining wild life and plant genetic pools, etc.)

An Accelerating Pace of Change

Pace of change to quicken in the future.

Technology and other forces have had a profound impact on the way we live and work. While there has been an explosion of new products, technological advances have also had a major impact on competitiveness and labour productivity. A key summary indicator of the impact of technological advances is the growth in labour productivity. Driven by competitive forces, individuals and institutions alike extract beneficial information and resources from their changing environment to enhance economic output. Whereas labour productivity increases averaged 0.4% annually in the 1700's, by the 1900's, productivity growth climbed to 1.1%. It is estimated that in the last 40 years, average annual productivity increases have been in excess of 1.8%. It is expected that technological advances will have an even more profound impact in the future. The

growth in the number of scientists employed in research and develop ment, and the substantial investment in basic and advanced education wi fuel the explosion in new products, technologies and processes. A paralle trend is the decline in goods-producing industries relative to service based industries, as new technologies reduce labour and other input re quirements in traditional manufacturing and resource-based industries In contrast, the service-producing industries are expected to continue t grow, reflecting the growth of knowledge and information bases of all in dustries.



Implications of Change

All areas of the economy have witnessed substantial economic, demographic and social changes.

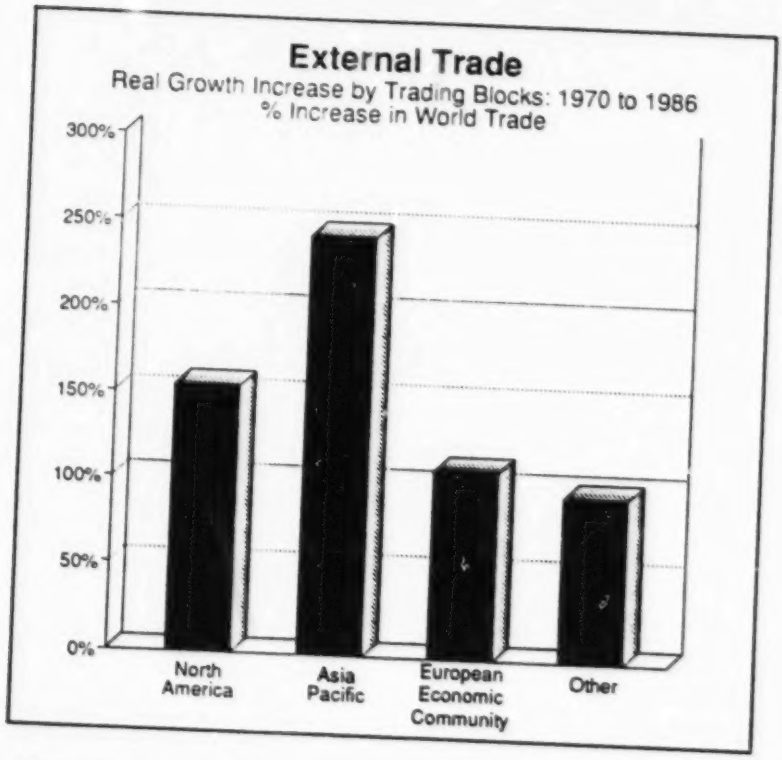
The implications of economic, demographic, environmental and technological changes are far reaching. In the last two decades, these forces of change have had profound impacts on our environment and have resulted in an ever-accelerating pace in a number of areas including:

- shifts in economic power and the rise of NICs and the Asia-Pacific region in particular;
- trading patterns, trade imbalances and the rise in regional trading blocks;
- volatility in financial markets forcing deregulation and globalization;
- divergent regional economic growth within nations;
- rise of structural unemployment and the need for labour market adjustment;
- visible impact on, and awareness of, the physical environment; and
- rising demand and expectations for publicly derived social services.

The considerable disparity in regional economic growth, trade imbalances, escalating fiscal deficits, debts and bankruptcies suggest that not

all governments and businesses have managed such changes successfully. For example, the aggressive adoption of new technologies by the newly industrialized countries (NICs) in the Far East has resulted in a substantial increase in the share of world economic production and trade accounted for by these countries. Within the developed economies, much of the relative gains in the standard of living have been made by countries such as Japan, Germany, Italy, Sweden and France which have focussed on developing their human resources and their knowledge bases. Canada and the United States have had a mixed performance.

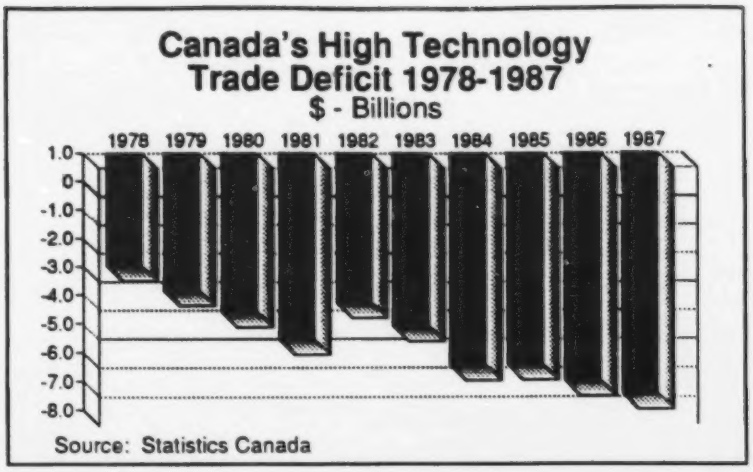
The rise of the Asia-Pacific region requires a refocussing of our national policies and institutions.



The Canadian Experience

The Canadian experience has been mixed. Although Canadian industry has aggressively adopted new technologies required to compete in world markets, Canadian industry has fared poorly in the development of new technologies that are becoming more important in their own right. The National Sciences and Engineering Research Council of Canada (NSERC) recently estimated that Canada's cumulative technology trade deficit for the period from 1978 to 1987 was $53 billion, of which $7 billion was for 1987 alone.

Canada's cumulative technology trade deficit since 1978 is estimated to be approximately $53 billion.



It is also becoming increasingly clear that a substantial number of Canadian workers do not possess the skills required to interact in an increasingly complex work environment. The growth in the number of long-term (one year or more) unemployed highlights the mismatch between the current skills of many workers and the skills now required in a technologically-oriented workplace. For example, despite the 11% increase in the number of people employed in Canada, the number of long-term unemployed persons has jumped from 39,000 in 1981 to more than 70,000 in 1988. The de Grandpre Council addressed this problem in its March, 1989, report which stated:

> "...in view of the high level of functional illiteracy among Canadians, the high drop out rate, and the prevalence of skill shortages and significant unemployment existing side by side, the Council believes that the education systems fail to prepare some significant segments of the Canadian population for the challenges of a modern society."

According to a Canadian Labour Market and Productivity Centre (CLMPC) report, 600,000 job vacancies co-existed with 970,000 unemployed Canadians in late 1988. The need to develop effective policies that address the impacts of economic, demographic and technological change has been well recognized by key public and private sector organizations. For example, in March, 1987, the federal government released its National Science and Technology Policy, the objective of which was to:

> "...bring science and technology fully to bear on the economic, social, cultural and regional development of our country"

Similarly, recommendations contained in the Economic Council of Canada's *Back to Basics* and de Grandpre Council's *Adjusting to Win* highlighted the need to develop a well educated, flexible workforce that could more easily adapt to changes wrought by global economic and technological forces. Industry, too, is aware of the importance of education and training to enable the workforce to meet the demands of a competitive workplace. The Canadian Manufacturers' Association (CMA) indicated that:

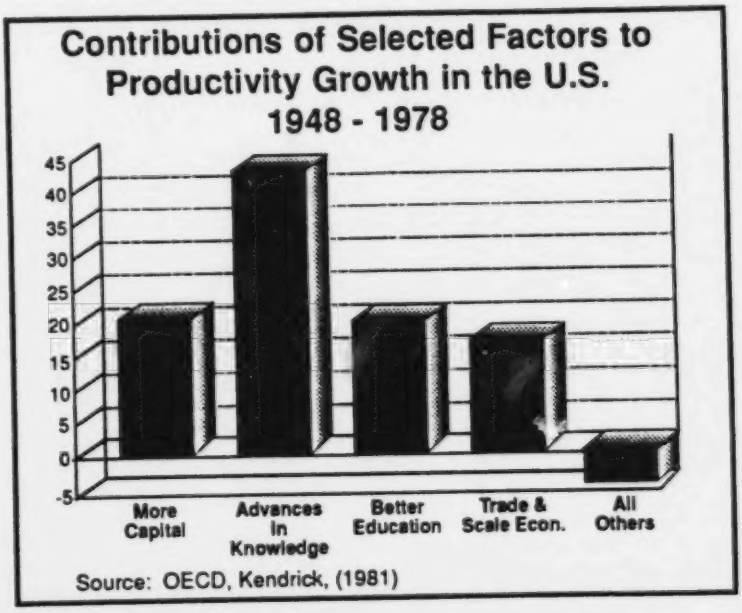
> "The challenge for all parts of our education system is to develop the human resources that Canada needs to be competitive. We need... to set new standards of excellence in the basics for graduates."
>
> *CMA, Daring to Compete, 1988*

THE EMERGING CONSENSUS

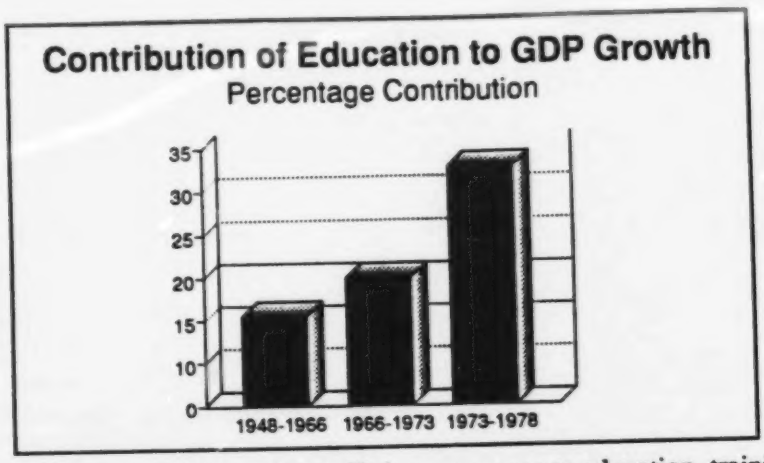
The link between economic growth and education and research and development has been well established.

Overview

Economic research provides strong evidence that advances in education and knowledge are major contributors to economic growth. The link between economic growth and research and development has been well established. Recent literature indicates that sluggish growth in R & D expenditure has been instrumental in recent declines in productivity growth. At the same time, the contribution of education and training to total productivity has been increasing rapidly, commensurate with the allocation of society's resources to this factor.



As the pace of technological advancement quickens it is expected that the role of knowledge, education, and research and development will increase in importance in determining economic growth and competitiveness. As well, the continued introduction of new goods and services is vital to continued productivity growth in the economy as a whole. Established products have very little room for productivity innovations. Value-added and product innovation are the keys to future economic growth.



The importance of allocating sufficient resources to education, training and technological development has been acknowledged as the cornerstone for competitiveness in the 1990s. This national awareness has been echoed by several prominent commissions, agencies and private sector organizations.

Towards a National Consensus

"Increasingly, wealth-generation and job creation are being driven by science-based innovation. Canada's growing lack of competitiveness in science and technology undermines that wealth generating capacity"

"A Call For Action", The Halifax Declaration

"Today the world competes on brainpower. Knowledge has become the primary material in the world economy. Our country's system of education must be the basis of a powerful competitive advantage."

CMA National Task Force on Higher Education

"The Council identifies improvements in basic education and training as among the most critical steps Canada must take to enhance its international competitiveness."

de Grandpre Advisory Council on Ajustment

"It is clear that our traditional manufacturing and resource-based industries, as important as they are to Canada, will no longer assure us a strong position in the global economy if we don't complement them with modern technology."

Rt. Hon. Brian Mulroney, Prime Minister of Canada

The Consensus

To compete in the emerging global economy, Canada must develop its competitive position. We can no longer rely on our wealth of natural resources to provide economic growth. The economy can only generate continued growth through innovative products and productive processes.

To achieve this, we require an environment that is fertile to human resource development, and places greater emphasis on R & D, and facilitates the use of new technologies.

- The economic and social environment must promote the growth of a highly-skilled, well-educated and adaptable workforce.

- We must provide a climate that promotes science and technology in the economy and culture of Canada to enhance the diffusion of technology integral to the future competitiveness of traditional industries, as well as the development of innovative goods and services that can secure a greater share of the world market.

- Above all, we must ensure that Canada's economic growth is sustainable using technology wisely to enhance the quality of life and ensure environmental integrity.

Despite the "call for action"... it appears that Canada has done little to better position itself to compete in the 21st century.

Despite the "call for action" among governments and industry alike, it appears that Canada has done little to better position itself to compete in the 21st century.

While a clear consensus has emerged as to what actions are necessary to secure Canada's position in an increasingly competitive environment, a review of three key areas: education; skills development; and science and technology suggests that Canada has yet to develop the necessary infrastructure to compete in the 1990s.

ADAPTING TO THE NEW REALITY – THE CANADIAN EXPERIENCE

Canada has a long way to go towards developing the infrastructure to compete effectively in the 1990's.

A review of the competitive factors fundamental to the future of an increasingly knowledge-based economy (education; training and skills development; science and technology) suggests that Canada has a long way to go in order to develop the infrastructure it needs to compete effectively in the 1990's.

Competitive Factors – Education and the Knowledge Base

Throughout Canada, education and advanced education are becoming the focus of attention of public officials and business leaders because of the growing awareness of their importance to economic development, competitiveness, and technology transfer. The federal and provincial governments are continually searching for new ways to link business and advanced education, and to channel these cooperating forces into new activities contributing to the economy.

To be prepared means using a broad spectrum of human resources as a competitive edge, rather than simply as a factor in production. Human resource development must be viewed as an investment in people, not an operational cost. In this context, a comprehensive economic strategy will ensure the provision for rapidly changing skill requirements and foster the growth of new businesses based on new technologies, new skills and imaginative leadership.

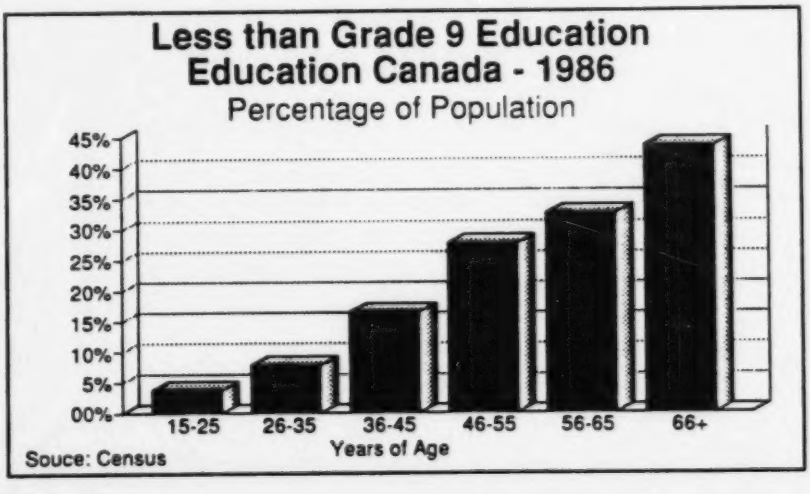
Literacy

Although public awareness of illiteracy in Canada is increasing, the need for response has been set forth repeatedly in studies since the early 1970s. Based on the Southam Literacy Survey in 1987, approximately 4.5 million Canadian adults are illiterate, representing 24% of the adult population in the 18 plus age group. A further 1.7 million adults (9%) are only marginally literate. Canadians in the 21 to 25 year old age group performed at a slightly lower level than Americans in the same age group.

It should be noted that the high illiteracy rate found in the Southam Survey (24% of the adult population) is in contrast to the very low illiteracy rate attributed to Canada by other international organizations. However, in many of these international surveys, literacy is defined in functional terms as the ability to complete a simple application form.

However, Canada still ranks lower than Japan, Sweden, West Germany and the United States in terms of overall national literacy despite having the second highest per-capita spending on public education among the major industrial countries.

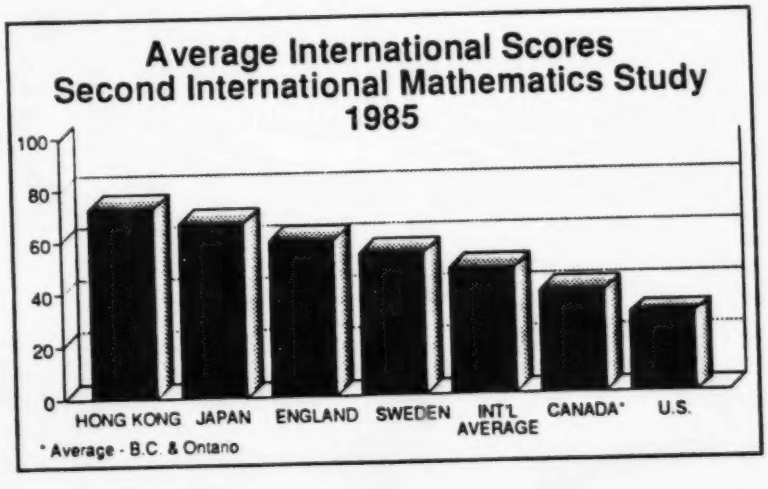
The Business Task Force on Literacy estimated that illiteracy costs Canadian business $4.2 billion and society $10 billion annually. If Canada and the provinces are to provide continued strong economic leadership, immediate action must be taken to reduce the illiteracy rate. The utility of such a policy is reinforced by the Organization for Economic and Cooperative Development (OECD) which claims that Japan's 1% illiteracy rate is one reason for its economic preeminence.



While demographics will alleviate the problem of basic illiteracy... the quality and effectiveness of education will remain a long-term priority.

It should be noted, however, that the problem of illiteracy will become more manageable as a result of on-going demographic changes. For example, as highlighted in the accompanying chart, although a substantial portion of Canada's elderly (population aged 65 years or more) have less than grade 9 education, only a small proportion of younger Canadians do not have a grade 9 education. However, it is likely that basic literacy will no longer be sufficient in an increasingly complex work environment. "Technological" illiteracy might become more widespread with the growth of the knowledge-based economy.

While the problem of illiteracy might be declining, Canada must still address the quality of basic education provided. For example, a 1985 study in which student achievement was compared on standardized mathematics areas revealed that, generally, Canadian students fared more poorly than did students in other leading developed countries. For example, the results of the Second International Mathematical Study (SIMS) indicated that Canadian students scored substantially lower than did students from Japan, Hong Kong, and Sweden. Similar education achievement studies indicate that Canadian students are well behind in physics (Canadian students were ranked 11th out of 13 countries studied) chemistry (12th), and physics (11th). These sub-average scores clearly indicate the need for a re-examination of the nation's educational system to ensure that our future workforce is sufficiently educated to participate in the technologically-intensive high-growth industries of the future.

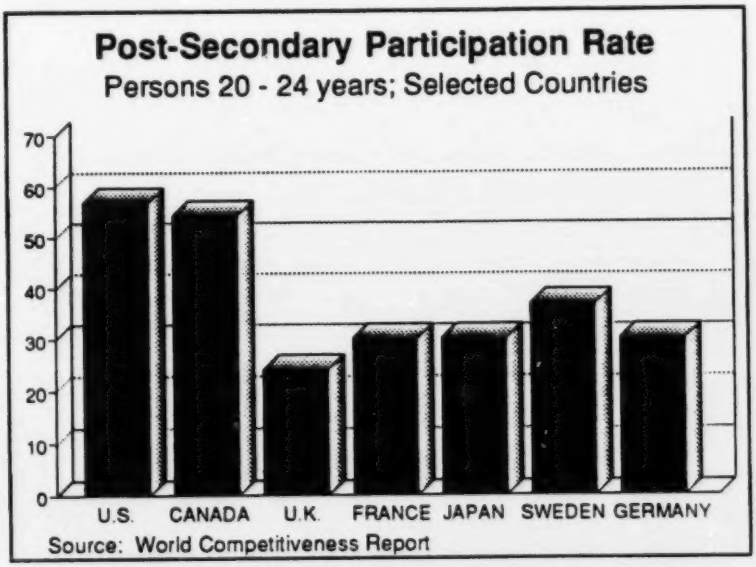


Canadian students still score well below students in other developed countries.

Advanced Education

The economic benefits of education are most apparent during times of intense competition. As the economies of the industrialized and developed countries become increasingly dependent on information and technology, higher education assumes a heightened importance. For those developed countries with only modestly-sized domestic economies, such as Canada, higher education is critical to the aspiration to compete effectively in a world economy.

It is interesting to note that despite Canada's high participation rate in post-secondary education, the number of graduate degrees conferred is well below that of other competitor countries. The shortfall is particularly acute in mathematics, sciences, and engineering.



Share of Ph.Ds in sciences and engineering is declining.

It is also interesting to note that whereas in 1970, almost two-thirds of all Ph.Ds granted in Canada were in the fields of agriculture, sciences, mathematics and engineering, by 1987, less than one-half of doctorates awarded were in these areas. Doctorates in the social sciences, humanities and education, however, have increased markedly (increasing from 27% in 1970 to 48% of all doctorate degrees conferred in 1987).

Post-Secondary Education Funding

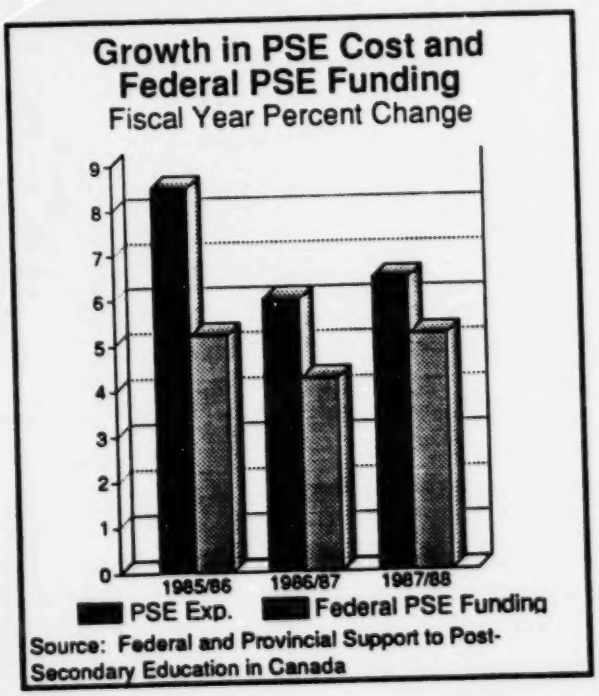
Productivity increases in university activity have lagged behind those of other areas of the economy.

Although education is the key to the long-term development of the Canadian economy, it is evident that there is a need for a fundamental review of the current delivery system and its effectiveness and efficiency in generating a sufficient number of graduates in appropriate disciplines. There are several factors contributing to a faster increase in per-capita expenditures including changes in program mix, and emphasis on research. Nevertheless, a recent study has noted that:

". . estimates indicate that productivity in the instructional activity of universities has failed to grow significantly over the last ten years. When allowance is made for changes in the quality of output, the figures indicate that at most there has been a 2% increase in productivity over the ten years in question. In contrast, total factor productivity in manufacturing over this period shows an annual growth of 1.2 percent. ."

Fraser Institute,
Higher Education in Canada pp xi,xii

Concern is also mounting as to the costs of maintaining Canada's post-secondary education system. For example, during the past three years, the growth in federal contributions (including Established Program Financing transfers) to post-secondary education has been well below growth in total post-secondary education spending. This shortfall has resulted in an increase in provincial funding, as well as higher tuition fees for most universities in Canada.



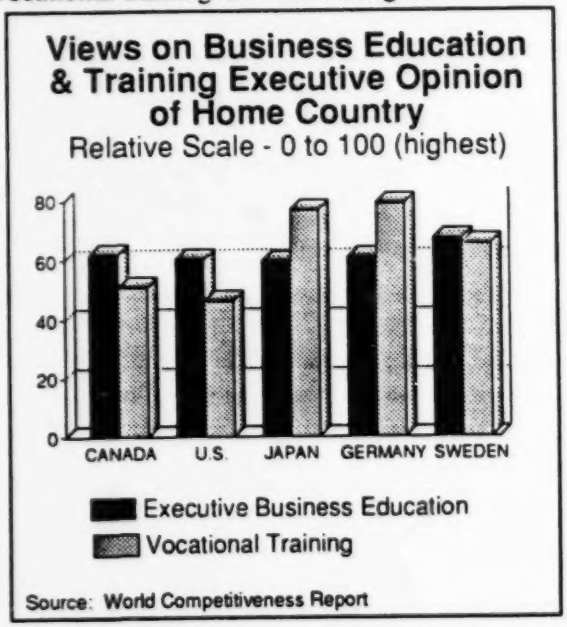
Growth in PSE expenditures have outstripped federal contributions.

Educating Business Managers

The competitive vitality of Canadian business also depends on talented, well-trained management. However, the current quality of business education does not meet the needs of industry that seeks world class excellence. While some Canadian business schools maintain the highest standards, the level of management training is uneven. In expanding to meet rising student demand, some schools have sacrificed the quality of their programs.

As highlighted in the accompanying chart, Canadian managers tended to assign a lower rating to business education and training than did other major competitors; similarly, Canadian managers assigned lower scores to Canadian vocational training than did managers in other countries.

Managers are less satisfied with the executive business and vocational training in Canada than are managers in other countries.



Competitive Factors - Skill Development and Labour Markets

Competitiveness reflects an attitude towards managing change which needs to be adopted by all stakeholders in the labour market and the economy. In an increasingly integrated world economy, it is also an essential survival skill for both individuals and nations.

Globalization of the production of goods and services and the markets in which they are exchanged, along with technological change and demographic movements, have been identified as greatly impacting all stake-

holders in Canada. Increased competition, the aging of the workforce, and the shifting of employment from resources and manufacturing to service industries—particularly less value-added "low-end" services—are economic realities. There is growing awareness that better management of human resources is imperative in meeting these changes.

The cornerstones of competitiveness—excellence, flexibility, adaptability and proactive policies for the Canadian economy, people and institutions—are reinforced and supported by responsive training, effective skills development and labour force adjustment activities. Without such measures, national, regional, organizational and worker competitiveness suffer, and symptoms such as lagging productivity, structural unemployment, and skill shortages persist.

A number of Canadian studies have indicated the importance of skills development and training as being critical mechanisms for fostering an effective and adaptable labour force.

In several recent Canadian studies, skills development and training have been identified as being critical mechanisms for fostering an effective and adaptable labour force able to meet the needs of the future. The Economic Council of Canada's *Back to the Basics*, the de Grandpre Advisory Council on Adjustment's *Adjusting to Win*, Employment and Immigration Canada's *Success in the Works*, The Province of Ontario's Ministry of Skills Development; *The Training Decision: Training in the Private Sector*, the Canadian Labour Market and Productivity Council's (CLMPCs), *Report from the Business/Labour Task Force on Adjustment*, and the CLMPC's national household survey *Speaking Out on Training*, all recommended a stronger commitment amongst employers, governments, and individuals to training and upgrading the skills of workers. Implicit in these statements is that the present quantity and quality of skills development and training in Canada must be improved.

Competitiveness factors in skills development and training can be quantified for the various participants and stakeholders in the labour market including workers, businesses and governments, and can be compared with their counterparts in other countries. These comparisons of labour market competitiveness factors go a long way in explaining the differences in overall economic performance between the various countries.

Labour Force Competitiveness - Employee Training

Given that the workplace will be characterized by ever-increasing change, a cornerstone of Canada's competitiveness policy should be the implementation of a pro-active training and skills development program. Whereas during the period from 1950 to 1980 the average worker experienced 2.1 job changes, it is now expected that an average worker can expect to change jobs at least 5 times during his or her career.

Recognizing that change will be an integral aspect of Canada's future workforce, Canada must develop policies that will effectively address the training challenges posed by an increasingly complex work world. As noted in a recent OECD report:

> "A major factor in international competitiveness in OECD countries by the year 2000 will be the capacity of various economies to utilize their labour forces effectively in a knowledge-based economy."
>
> *Changing Patterns of Education and Work- -Implications for Literacy: An OECD Perspective*, Jarl Bengtsson, *OECD, 1988*

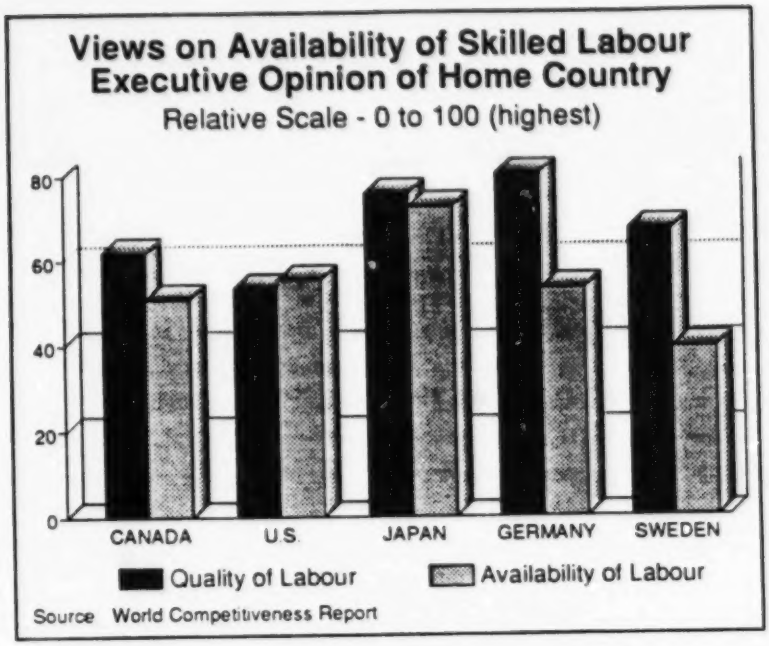
Despite the importance of skills development, it appears that Canada has not devoted adequate resources to this area. Other competitor countries have done more, for example:

- It has been estimated that the average Swedish worker participates in 170 hours of training per year; in Japan, the figure is approximately 200 hours; in Canada, the average worker has 2 hours of training annually.

The 2 hours of training per year that Canadian workers receive pales against the 170 and 200 hours of training received by Swedish and Japanese workers respectively.

- From a review of survey data on adult training in Sweden it can be concluded that the overall participation rate in adult education in Sweden is twice as high as in Canada. 22% of the Swedish work force participated in workplace education and training during 1986. In comparison, only 6% of Canadians participated in such training. Five times as many Swedes as Canadians participated in full-time workplace training for more than one month during this period.

- The quality and availability of skilled labour is more of a problem in Canada than most other countries. A recent World Economic Forum survey found that Canadian managers considered the quality and availability of skilled labour to be more of a problem than did managers in most industrial countries. In the last quarter of this year, 15% of Canadian manufacturers experienced production problems due to skill shortages, considerably higher than the 1% level experienced in 1982.



Labour Market Policies - Private and Public Investment

It appears that Canada's poor standing in terms of training and skills development reflects inadequate investment by both the private and public sector, for example:

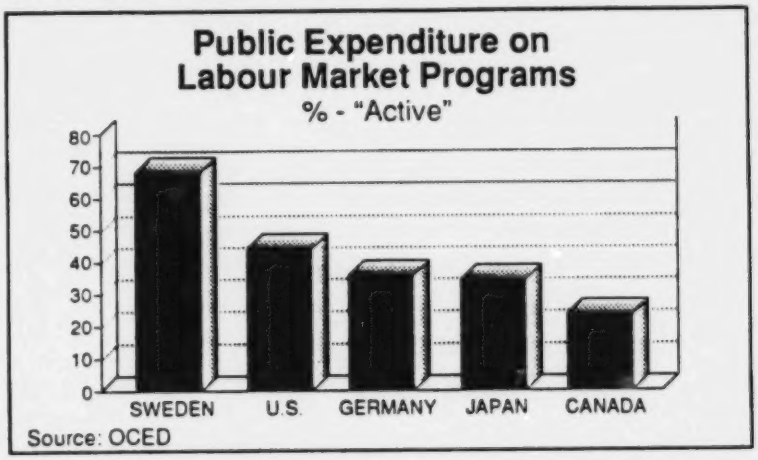
- A 1987 Statistics Canada *Survey of Human Resource Development and Training* found that employers spend about $1.4 billion, or less than 0.3% of Canada's GDP, on training – half of the expenditure by U.S. employers on a per employee basis.

- According to the recent CLMPC household survey, *Speaking Out On Training*, over two-thirds of Canadian workers indicated that training and retraining are very important factors for the continued success of their organizations. However, 41% of Canadian workers received no training in the last two years, and an additional 18% received one week or less. More than half of all unskilled workers in Canada received no training.

- According to some estimates, the average recruit in Japan spends roughly 20% of all work time in on-the-job training for the first few years of employment.

Countries such as Sweden, Japan and Germany devote considerably more of their labour market expenditures to "active" programs than to passive income support programs.

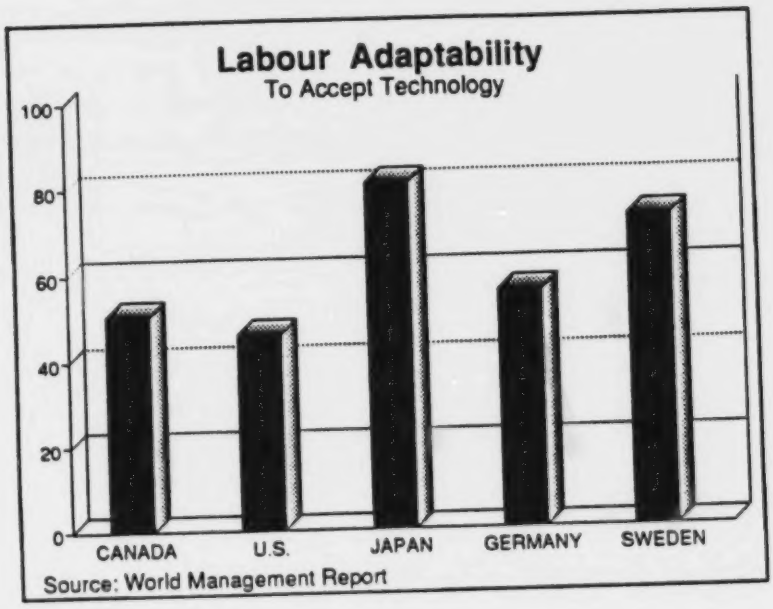
While the total labour market expenditures incurred by the public sector compares favourably to that of other jurisdictions (2.1% of GDP for Canada compared to 0.7% for the U.S., 0.6% for Japan, 2.4% for Germany), it appears that much of this expenditure is targetted for income support rather than "active" training programs. A recent OECD review of labour market expenditures on the basis of "active" (employment services, labour market training, employment subsidies, etc.) and "passive" (UIC, early retirement programs, etc.) concluded that Canada spent almost three times as much on "passive" programs as on "active" programs. In comparison, countries such as Sweden, Japan and Germany devoted considerably more of their labour market expenditures to active programs than to passive (income support) programs.



It is clear that technological change must be accompanied by a flexible and adaptable workplace.

Application of Innovation

In addition to having a highly skilled workforce, integral to Canada's long-term competitiveness will be the ease in which new innovations, processes and technologies can be introduced into the workplace. Clearly, much of the success of the newly-industrialized countries would have been constrained had organizations and employees resisted the introduction of new technologies. Similarly, the increases in productivity achieved in the developed economies such as Sweden and Japan reflects the flexibility of their labour forces to assume new work functions or embrace new technologies. In contrast, the Canadian labour force is perceived to be considerably less flexible in its acceptance of new technologies or new job functions. Human resource planning and innovation must be integrated into the strategic and marketing planning of organizations. Innovativeness is reflected not only the acquisition of new hardware, but also in the development of flexible, participatory and responsive organizations. It is clear that technological change must be accompanied by a flexible and adaptable workplace.



The under-utilization of Canada's human productive potential is a major drain on the economy.

Realizing People Potential

Canada's competitive position in the global economy depends to a significant extent on the full utilization of the skills and talents of all Canadian workers. The under-utilization of Canada's human productive potential is a major drain on the economy. Unemployment, social assistance, underemployment, illiteracy and unused human capital is estimated to cost Canadians billions of dollars each year.

In order to achieve and promote the full utilization of human skill potential, Canada needs to recognize the economic value of ensuring that all Canadian workers are fully utilized. A "National Competitiveness Strategy" for Canada requires specific actions to ensure that disadvantaged groups can fully utilize education and skill development opportunities. Concerted efforts are required to assist women, persons with disabilities, Natives and immigrants in realizing their full potential.

Competitive Factor - Science and Technology

During the past three years, several Canadian studies have concluded that the key to future economic growth is in the development of people and industries that can exploit the opportunities associated with rapidly changing technologies and markets. At the same time, however, it has become very apparent that Canada is slipping rapidly in its ability to generate and apply the technology that will enable her to compete in the world marketplace.

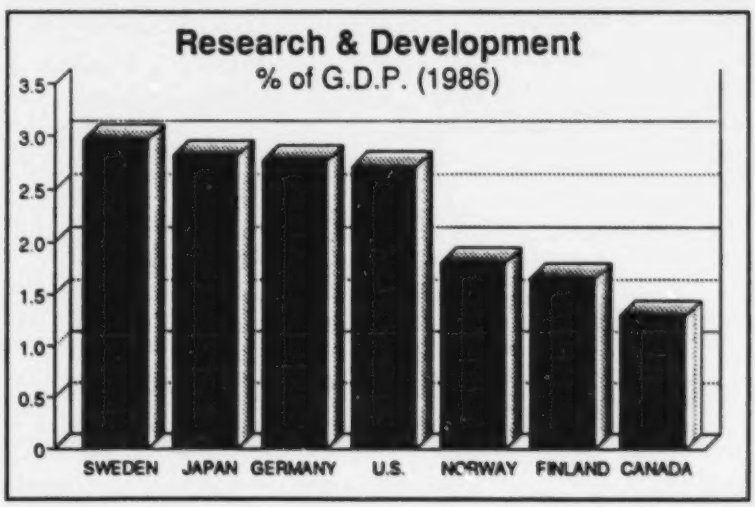
There is increasing awareness that inadequate efforts in science and technology will jeopardize Canada's competitive position and erode its standard of living.

> "Increasingly, wealth generation and job creation are being driven by science based innovation. Canada's growing lack of competitiveness in science and technology undermines that wealth generating capacity. Canada's trade partners are one up in the race for wealth generation and future job creation."
>
> *The Halifax Declaration*

There has been an increasing awareness that our lack of focus on science and technology will jeopardize Canada's competitive position and erode its standard of living.

Canada's R & D Investment

Despite recognition of the importance of R & D in long-term economic growth, Canada's efforts in research and development pale in comparison to those of Japan, the United States and Great Britain. Canadian R & D efforts are also considerably lower than those of other resource-based economies including Sweden, Norway and Finland.



The outlook for increases in R & D spending in Canada is not promising. Whereas most executives in Japan, Sweden and the U.S. expect R & D spending to increase much faster than inflation, business executives in Canada are less confident about the growth of R & D investment.

For example, in a recent world competitiveness survey, almost three quarters (69.4%) of Japanese managers felt that their R & D expenditures will grow much faster than inflation; in comparison, only 50.8% of Canadian managers were of the same opinion.

Who Funds R & D in Canada?

In 1986, R & D spending in Canada amounted to approximately $7.2 billion. Of this amount, approximately one-third was funded by the federal government, 41% by industry and 16% by provincial governments and universities. It is interesting to note the following observations:

- During the period from 1979 to 1986, the share of R & D funding accounted for by the federal government slipped from 36% to 33%. In contrast, the provincial government and university share remained relatively unchanged at 16.2%.

- In Canada, the public sector (federal and provincial government, universities) performs approximately one-half of all R & D. In comparison, public sector performance of R & D in Japan (32%) and the United States (36%) is markedly lower.

- Canada's forest product sector, a leading industry in Canada, spent less than 0.5% of sales on R & D - this is considerably lower than the 1% research and development investment made by U.S. forest products companies, and much below those of the Scandinavian countries.

Science and Technology

Transforming Technology to the Economy

Crucial to the development of a competitive economy is the application of new products and processes to existing industrial processes. Despite the widely-accepted consensus that future competitiveness is contingent on the development and application of technology in the workforce, there is considerable concern that Canada's science and technology strategy has done little to promote R & D in Canadian industry. It is estimated that almost three-quarters of total industrial R & D is performed by just 100 companies, ten of which account for 40% of total industrial R & D. As noted by the Canadian Institute for Advanced Research:

There is considerable concern that Canada's science and technology strategy has done little to promote R & D in Canadian industry.

> "Canada's...capacity to perform in industry strategic applied research...is appallingly weak...A strong capacity to perform long-term applied research is essential as part of our industrial structure if strategic market opportunities are to be identified by industry and pursued through sound programs of investment keyed to all the elements in the chain of innovation.
>
> Canadian Institute for Advanced Research,
> *Innovation and Canada's Prosperity: The Transforming Power of Science, Engineering and Technology* p.45

There is a wide-spread consensus that industry will have to commit substantially greater resources to R & D and technological innovation to remain competitive in the future. Recent reports indicate that the use of technologically-advanced products and processes will increase even more rapidly in the future. Canada's inability to participate in such industries might well result in a substantial increase in our current high technology trade deficit that is estimated to be in excess of $7 billion annually.

ELEMENTS OF A NATIONAL STRATEGY

Overview

As highlighted in the previous sections, it is imperative that Canada develop a National Competitiveness Strategy to address the current inadequacies identified by several prominent national and international reviews. Specifically, a national strategy should include mechanisms to:

- enhance the basic literacy and analytical skills of Canada's workforce;
- evaluate the cost-effectiveness of basic and advanced education, with special emphasis on promoting "lifelong learning", as well as renewed emphasis on those skills/disciplines that are integral to the development of a competitive, technologically-advanced infrastructure;
- ensure that Canadian workers receive adequate training to enable them to enter, adjust and upgrade their skills in a dynamic work environment; and
- promote the development and diffusion of scientific and technological know-how in all aspects of the economy.

Building on Existing Strategies

The development of a "National Competitiveness Strategy" builds on a series of existing intergovernmental strategies.

A number of provincial and national strategies have focussed on the need to prepare Canada to compete more effectively in a changing global environment. The development of a "National Competitiveness Strategy" builds on a series of existing intergovernmental strategies endorsed by jurisdictions as a cooperative effort to enhance Canada's competitive position in the global economy. These exercises, as outlined in Appendix A, contain a comprehensive set of initiatives designed to address current inadequacies. However, while such strategies have received significant attention by governments in Canada, there is still the need to develop, at the national level, a process and mechanism to facilitate the integration, implementation and monitoring of the desired objectives. Examined in this paper are some of the mechanisms that would "quarterback" the identified initiatives as they relate to education, skills development, and science and technology.

Recent B.C. Initiatives

B.C. is committed to preparing its workforce to compete in the 21st century.

British Columbia has acknowledged the necessity of developing appropriate strategies to secure a competitive advantage in the global marketplace. Many of the policies embodied in recent B.C. initiatives are consistent with the general themes proposed for a National Competitiveness Strategy. These recent B.C. initiatives can be classified as follows:

- A focus on *Basic and Higher Education* to ensure that our educational system meets future educational requirements;

Education driven initiatives include:

- the Royal Commission on Education (The Sullivan Commission)
- "Access for All", a strategy to enhance post-secondary participation and to develop innovative partnerships between community colleges and universtities to facilitate college degree-granting capabilities
- enhanced student financial assistance
- Advisory Council on Post-Secondary Education for Native Learners
- Literacy Advisory Council

Far reaching initiatives in eduction, skills development and science and technology.

- An emphasis on developing *Skills and Labour Market Policies* to enhance employment opportunities for British Columbians,

Some of the initiatives underway are:

- Commissioning of a Task Force on Employment and Training
- rationalization and expansion of the Training and Enterprise (TEC) Centres

- Provincial support for *Science and Technology*.

Reinforced by the following:

- adoption of a nine point Science and Technology policy based on the work of the B.C. Premier's Advisory Council on Science and Technology (PACST)
- development of a number of initiatives based on the Strategic Planning for Applied Research and Knowledge (SPARK) process
- commitment for R & D on environmental research including a Universities Network of Research on Sustainable Development.
- commitment to the KAON Project to maintain and enhance a National Centre of Excellence in high energy physics

In addition the province has established an International Competitive-

ness Advisory Board to evaluate and monitor the competitiveness of British Columbia's industries in global markets.

Towards An Integrated National Strategy

It is envisioned that a national strategy would incorporate some of the elements of strategies of B.C. and other parts of Canada based on the fundamental role of education, skills development, and science and technology.

A national competitiveness strategy would also build on the key priorities already defined in previous intergovernmental strategies. Although there exists a wealth of information, Canada needs mechanisms to integrate and develop a comprehensive action plan.

There is a greater need to link current and future business requirements with educational outputs.

Education

A national strategy must set measurable goals for our education system:

- The need for linking current and future business requirements with educational outputs has generally been recognized.

- Given that educational costs represent a substantial portion of provincial expenditures, it is essential that innovative mechanisms be developed that will increase the efficiency and effectiveness of educational institutions and thereby maintain the favourable participation rate enjoyed by Canadians.

Develop a Canadian training culture where the importance of skills training is understood and acted upon as a matter of course.

Skills Development

A comprehensive national competitiveness strategy requires skills development and labour market measures which promote the competitiveness of businesses and communities. The strategy would address the following goals:

- to set measurable goals for promoting on-the-job training to approximate similar training done in other competitor countries;

- to develop a Canadian training culture where the importance of skills training is understood and acted upon as a matter of course;

- to create a national skills development system whose components will cooperatively identify and respond to shifting occupational and skill requirements through innovation and flexibility; and

- to establish a workforce which is equipped with solid basic skills, transferable work skills, and an attitude that promotes adaptability and the effective management of change.

Science and Technology

Increase overall R&D expenditures to approximately 2.5% of GDP.

Recognizing that the development, acquisition and application of new technologies is essential to compete in the 1990's, a national competitiveness strategy would be based on the following principles:

- adopt the Halifax Declaration including a national commitment to increase overall R&D expenditures to approximately 2.5% of GDP, a level that would be comparable to those of other developed countries;

- promote closer collaboration in R & D by the research community including universities, government, and industry and labour;

- promote the awareness in the private and public sector of developing policies that provide a framework conducive to research and development.

Mechanisms to Achieve National Competitiveness Object

First Ministers Conference on the Knowledge-Based Economy

A national competitiveness strategy demands commitment at the highest level. A key element in this strategy is a First Ministers Conference on the knowledge-based economy of the 21st Century, the purpose of which will be to establish competitive objectives and discuss possible inter-governmental mechanisms to achieve these objectives. Specifically, these mechanisms include:

(1) A Federal-Provincial Liaison Agency

(2) A National Technology Assessment and Promotion Office

(3) A comprehensive public awareness program

An integrated approach is needed to ensure that these components work together.

Federal-Provincial Liaison Agency

It is recognized that each jurisdiction has specific priorities and approaches in the areas of advanced education, skills development, and science and technology. Canada, however, requires a long-term vision and an umbrella strategy to ensure that, as a nation, Canada is working collectively towards advancing its global competitiveness.

Education, skills development, and science and technology are integral components of this national strategy. An integrated approach is needed to ensure that these components work together in promoting and enhancing Canada's competitive role in the global economy. In the absence of an integrated approach, this goal is unlikely to be achieved.

In order to achieve an integrated national strategy, an intergovernmental coordinating mechanism is required to ensure that the fundamental elements of the strategy are implemented, and that the strategy achieves its overall goal of enhancing Canada's competitiveness.

The proposed superstructure would build on existing intergovernmental structures.

This paper recommends that an inter-governmental coordinating mechanism be established for developing and monitoring the "National Competitiveness Strategy". This superstructure would build on existing intergovernmental structures at the ministerial level and would include representatives of key organizations such as the CLMPC, the Economic Council of Canada, the Science Council of Canada, the Canadian Manufacturers' Association, and the Canadian Federation of Independent Business.

Existing intergovernmental structures include the following:

- Council of Science and Technology Ministers;
- Committee of Ministers Responsible for Labour Market Matters;
- Council of Ministers of Education, Canada;
- Committee of Ministers Responsible for the Status of Women;
- Advisory Councils on Science and Technology; and
- Advisory Councils on the Status of Women.

The role of this "National Competitiveness" mechanism would be to:

- coordinate the development of an overall "national competitiveness" action plan;
- establish performance measures for ensuring that the goals of the plan are achieved;
- identify key aspects of the strategy for research and analysis on a national level; and
- prepare annual progress reports for tabling at the First Ministers' Conference.

Provide a "clearing house" of technological information for the private and public sector.

Towards a National Technology Assessment and Promotion Office

It is recognized that Canada does not possess sufficient resources to pursue all areas of technological innovation and development. However, with a refocussing of resources of national institutions to create a national office to monitor and assess the implications of new technologies, Canada's R&D efforts could be targeted to those areas deemed to be of prime importance to Canada's overall competitiveness.

Similar technology assessment and promotion offices exist in most industrialized countries. The establishment of a national agency would provide a "clearing house" of technological information for the private and public sectors and assessment of the social and economic implications of new emerging technologies and production processes. However, for this office to be truly "national" in scope, it is essential that federal, provincial, and private sector representation be achieved.

Development of a Comprehensive Public Awareness Campaign

Without widespread public support, federal, provincial and private sector initiatives are not likely to achieve their desired impacts.

Although technology awareness programs have been implemented by various government agencies, a comprehensive strategy is required to ensure that there is widespread public support for appropriate priorities on the development of the human and information resources of the nation.

APPENDICES

APPENDIX A: PREVIOUS COMPETITIVENESS STRATEGIES

Provincial/Territorial Education and Training Strategy

This strategy endorsed by Premiers at their 1988 Annual Conference, marked a major step in intergovernmental cooperation.

Through this strategy, Premiers emphasized the need to address issues which are fundamental to the ability of Canadian workers and Canadian enterprises to take full advantage of the economic opportunities offered by an increasingly competitive international environment. The three priorities identified are: new education and technologies; science and technology; and the financing of education and training.

The strategy states that, "The world has witnessed dramatic technological and economic change in the last two decades. The creation of wealth in Canada has become relatively more knowledge intensive and less resource intensive. Education and training will face dramatic new challenges in the future, and effective strategies are required to maintain Canada as a socially progressive and economically competitive nation".

Towards a Labour Force Strategy for Women

At their 1985 Conference, First Ministers endorsed a "Framework for Economic Equality for Canadian Women". The paper presented a concrete commitment to the goal of economic equality for women. As a first step, Ministers Responsible for the Status of Women were requested to develop a strategy to address the special difficulties women face in acquiring new job skills.

A "Labour Force Strategy for Women" was endorsed by First Ministers, with the exception of Manitoba, the following year. This strategy recognizes the need for Canada to develop its full human resource potential by drawing on the skills and abilities of women who represent approximately one-half of the Nation's population.

Integration of Work and Family Responsibilities

At their 1987 Annual Conference, First Ministers directed Status of Women Ministers to develop comprehensive strategies to facilitate the integration of work and family responsibilities. The development of these

strategies is based on the premise that family and other social responsibilities should be shared by both men and women.

The strategy is consistent with a number of Canada's national commitments designed to enhance the economic status of women. Canada is a signatory to the United Nations Convention on the Elimination of all Forms of Discrimination Against Women and the Nairobi Forward - Looking Strategies for the Advancement of Women, adopted by Canada and the United Nations in 1985.

Halifax Declaration: A Science and Technology Strategy

At the 1989 Annual Premiers' Conference, Premiers endorsed the core recommendations of the June National Conference on Science and Technology known as the "Halifax Declaration".

The key theme of the Declaration:

> "Canada, it was often remarked, is slipping exponentially in the global economy now being transformed by the power of science-based innovation."

Partners in People: A Human Resource Adjustment and Development Strategy for the 1990s

"Partners in People" is a multilateral labour market strategy which examines provincial/territorial priorities and federal policies.

> "Over the next decade Canada will face the challenge of adapting to fundamental structural and skill changes as its economy moves from one historically dominated by resources to one rich in the new economic activity of the technology, service and information sectors. The cornerstone of this transformation will be people - people with the skills necessary to take us into the 21st century."

APPENDIX B: SPECIFIC INITIATIVES IN A NATIONAL STRATEGY

The proposed strategy for ensuring that Canada has a leading edge in global competitiveness will be founded upon the key priorities already endorsed in a series of intergovernmental strategies. In addition to these elements, there are other significant initiatives proposed in this strategy.

Education

Canada needs a national approach to education which emphasizes its role in building a competitive economy. The key components will address the following goals:

- to link business and advanced education and to channel these forces into new activities which contribute to the economy;
- to reduce the illiteracy rate;
- to promote the economic benefits of advanced education;
- to increase the education level and participation of Canadians in advanced education; and
- to enhance the quality of business education to meet the needs of industry that seeks world class excellence.

Specifically, the strategy focuses on the following elements:

- immediate action to reduce the illiteracy rate through innovative policy initiatives;
- target new fields of advanced education to ensure competence in emerging areas of discovery, such as microelectronics, computer science, biotechnology and the health sciences;
- advanced education for the next generation of managers and entrepreneurs to lead the commercial thrusts of the new economy in the resource-based, service-oriented and diversified industries of the future;

- subject areas of particular significance to the economic strategies of the nation such as studies related to the language, culture, social economic, legal and political structures of Canada's trading partners;
- innovative programs of graduate study that enable specialization in subject areas relevant to current areas of national economic growth and concern;
- maintenance of the highest standards of training for the various professions that are critical for the health, social services and economic development of Canada;
- expansion of programs of continuing education and professional retraining;
- a combination of higher fees and a substantial increase in student aid targetted to those who need assistance (The deregulation of tuition fees will generate additional funds which will help foster excellence, and increase flexibility and responsiveness to changing economic and world conditions.); and
- increased emphasis by business schools on international marketing and expanded course offerings in management programs to reflect the new realities of global trade and competition;

Science and Technology

A Canadian strategy for science and technology would include the following goals:

- to increase overall expenditures on research and development;
- to emphasize research in particular areas relevant to the national economy;
- to promote closer collaboration in research planning by the universities, government, industry and labour;
- to increase the number of persons educated in science and technology; and
- to ensure the development of government policies supportive of science and technology.

Specifically, this strategy focuses on:

Natural Resources:

- continuing efforts to increase production by developing and applying improved equipment and processes;
- increasing value-added products by using innovation and the advantage of relatively low-cost energy; and,
- increasing R & D for the development of new products.

Energy:

- expanding Canada's energy reserves for energy-hungry processes and for value-added products;
- using R & D to develop more environmentally benign energy conversion plants; and,
- using R & D to improve and enlarge Canada's engineering and construction expertise for domestic and export purposes.

Niche Products:

- encouraging Canada's large companies to become international in outlook and operation;
- encouraging the formation of branch plants by foreigners in Canada while safeguarding the interests of the Canadian public.

Utilization of Innovations:

- establishing structures and funding for transfer and spin-off of research results from research institutions;
- encouraging incubation centres for start-up companies.

Utilization of the Enabling Technologies:

- identifying specific generic technologies and applying them to areas where Canada has a competitive advantage or where their enhancement will safeguard the next product level;

Participation in Emerging Technologies:

- encouraging the advice of researchers and industrial leaders on emerging technologies through the existing provincial and national advisory councils on science and technology.

> "Today, we live in a world where more than ever, it is inexcusable - and downright incompetent - to attempt to formulate government policy without the aid of strong and direct science and technology advice at the highest political levels. The challenges are enormous: sustaining global economic growth while maintaining environmental quality."
>
> *Halifax Declaration, 1988.*

Increased Industrial R & D:

- increasing the percentage of national R & D funding performed by industry.

"Various governments at various times have set various targets, the most recent being in the order of 2.5 percent of the GNP. What is the magic of 2.5 percent? It is the price of being in the club. If you are going to compete, you have to do things in a way that is competitive with what your competitors are doing."

Halifax Declaration, 1988.

Taxation:

- simplifying and improving the existing R & D tax system and providing tax incentives to promote public investments in R & D.

Financial Support:

- improving existing government programs of grants, loan guarantees, equity investment and procurement to support technology development.

Education and Training:

- ensuring the development of adequate numbers of technologically competent people by focussing efforts on science and technology education, training and upgrading.

Coordination of R & D Efforts:

- increasing dialogue and collaboration among and between governments, industry and research.

Technology Transfer:

- encouraging and supporting the adoption of new technology to maintain a state-of-the-art position wherever possible.

Public Awareness:

- increasing public awareness about the importance and role of science and technology in ensuring a high standard of living for Canada.

Skill Development and Labour Market Factors

A comprehensive national competitiveness strategy requires skills development and labour market measures that promote the competitiveness of researchers, businesses and communities. The strategy will address the following goals:

- to develop a Canadian training culture where the importance of skills training is understood and acted upon as a matter of course;
- to create a national skills development system whose components can cooperatively identify and respond to shifting occupational and skill requirements through innovation and flexibility; and,
- to establish a workforce which is equipped with solid basic skills, transferable work skills and an attitude that promotes adaptability and the effective management of change.

These fundamental goals for skills development and labour markets, which support national competitiveness, will be achieved by federal, provincial, private sector and voluntary action through:

> A framework for tripartite human resources planning and strategizing at the national, regional and community levels.

A mechanism must be created whereby governments, business, and labour can jointly identify common labour market problems and formulate common strategies at all levels that reflect a commitment to human resource development and planning.

We require:

- *more proactive labour market policies* which equip youth with work experience and basic skills before they enter a cycle of unemployment; strengthen workers' skills and qualifications before they are displaced; and promote adjustment to change by providing a comprehensive package of counselling, information, training and income support.

- *promotion of a commitment towards skills development and the creation of a training culture* among individuals, businesses and communities through coordinated national and regional communication and awareness campaigns.

- *creation of "strategic partnerships" to enhance labour force competitiveness* through local initiatives among colleges, the private sector, professional organizations, community groups and government.

- *establishment of regional "skills development centers of excellence"* across the country to bring together program managers, policy-makers, researchers and business decision-makers to work on developing state-of-the-art non-governmental training strategies.

- *joint support of "national training fund" which would provide seed money* to experiment with innovative methods of financing skills development in a particular region, industry, or occupation.

Realizing People Potential

A national competitiveness strategy for Canada requires the promotion of the full potential of all Canadians through the following goals:

(a) to develop and fully utilize the productive potential of all Canadians;
(b) to adopt flexible and innovative work arrangements in assisting organizations to retain and recruit a skilled workforce.

These goals for achieving people potential will be accomplished through:

- measures to increase awareness by girls and women of a wide range of career options;
- implementation of equity measures at all levels of the education and training system;
- development of programs to increase the participation of specific groups, such as women, in technical, trades, and apprenticeship training;
- continued leadership activities which recruit, develop and advance disadvantaged groups into senior management positions within the public sector;
- development and implementation of initiatives which assist workers in integrating work and family responsibilities;
- expansion of employment and training programs targeted at women, Natives, persons with disabilities and other defined target groups; and
- initiatives to encourage workplace innovation in Canadian establishments.